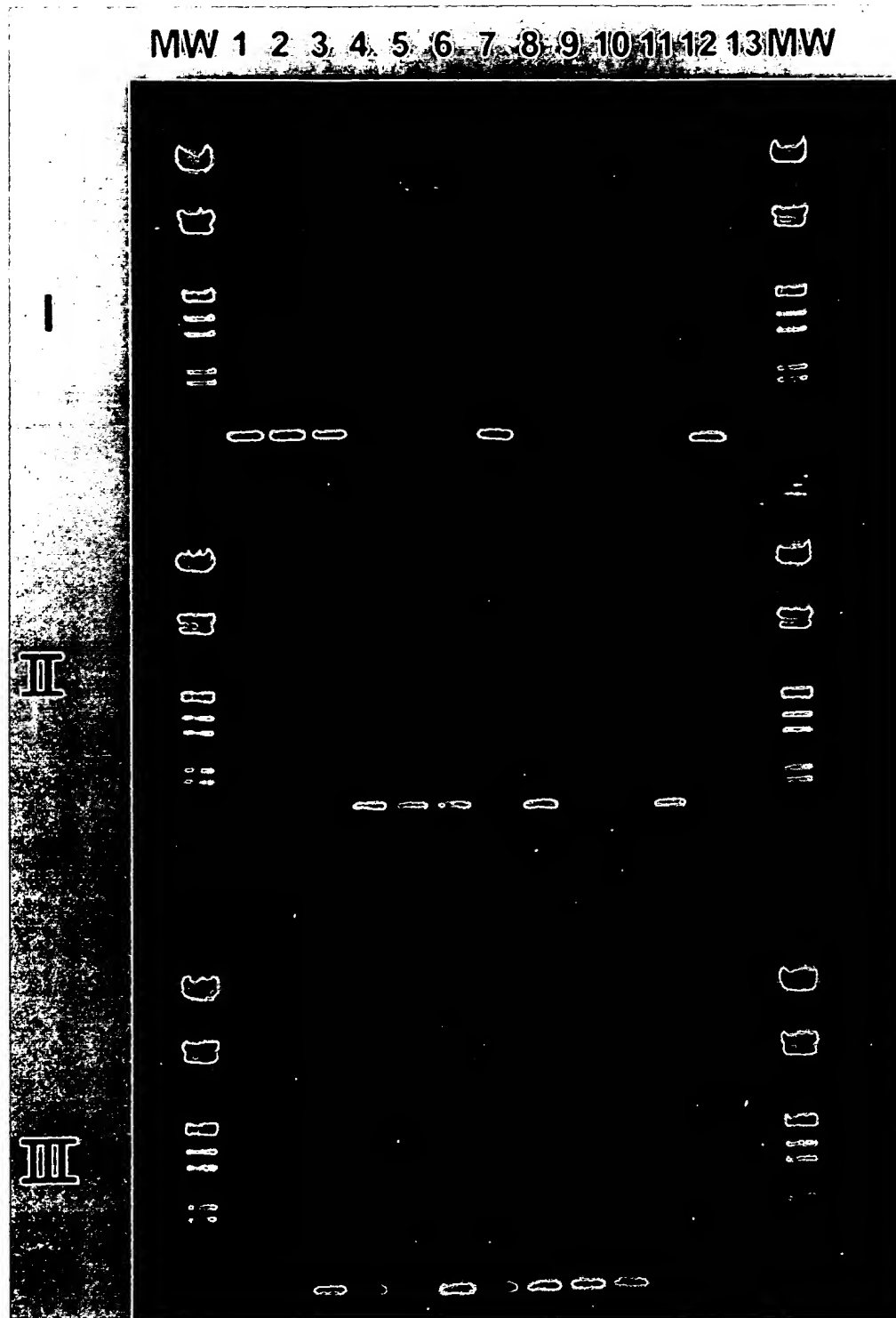Fig. 1

MW 1 2 3 4 5 6 7 8 9 10 11 12 13 MW

Fig. 2

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AAGCTTGGAT ATTGATCACA TGATGGAGGT GATGGAAGCA TCTAAGTCTG CAGCGGGGTC
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CTAGGGATAT GTATATCGAA GAGCATCCGA ATGTCAATAT CCATTTGATA
GATAGTTTGT CAGCCAGTGG GGAAATGGAT TTACTTGTAC ACCAAATCAA TCGCTTAATT
AGTGCAGGAT TAGATTTTCC ACAAGTAGTA GAAGCGATAA CTCACTATCG
GGAACACAGT AAGCTCCTCT TTGTTTTAGC GAAAGTTGAT AATCTTGTTA AGAATGGAAG
ACTGAGCAAA TTGGTAGGCA CTGTCGTTGG TCTTCTCAAT ATCCGTATGG
TTGGTGAGGC AAGTGCTGAA GGAAAATTAG AGTTGCTTCA AAAGGCGCGT GGTCATAAGA
AATCTGTGAC AGCAGCCTTT GAAGAAATGA AAAAAGCAGG CTATGATGGT
GGTCGAATTG TTATGGCCCA CCGCAACAAT GCTAAGTTCT TCCAACAATT CTCAGAGTTG
GTAAAAGCAA GTTTTCCAAC GGCTGTTATT GACGAAGTTG CAACATCAGG
TCTATGCAGT TTTTATGCTG AAGAAGGTGG ACTTTTGATG GGCTACGAAG TGAAAGCGTG
ATTCACAGAG TAATAATTTT GGGCTGTAAT TTCCGCTATA GAATAATCCC
CCTCTTCTTC TAAGTTCGAG GGGGATTGTT TGTATGAGAC TATTGGATTT CATTCATTCA
AATATCTTAC GAATTGCTCC AGTTTATCTG CAAAATCTTG TTCAAAGAAG
ATCTGTAAGA AATCAGCTTT CTGTCCGCTG AAATAATAAC ATTTTCCAAA CATGTGTTGG
ATGCTAGGAG AAAGAATCCC CTTGCTTAGC TGAAAGGTCA CGCTCCCCTT
TGGAATTCGA TACGGGATGT TTAAAGCGTA TTTCTCTAGA CAGTCTTTTA TTTTATTCCA
TTGAGCGTGA TAAATGTGAT GAAGATGCTG TGTGTTCCGC GCAAACATAC
CGTTATCAAT GTAGAGCGAG AGAGCTTTTT GCATGATAAG ATTGGTATCG TAGTCGATTA
GACTCTTATG TTTGATGAAG ATATCACGTA GCTGATTAGG AAGGCTGATT
GCACCGATTC GGAGGGCAGG AAAGAGTGTC GGTGTAAAAG ATTTTATATA GATGACGCGA
TTATCTGTAT CAAGATAGTG TAAAGGTAGG CTATGACTAG AGTCGAAATC
TGCTAAATAG TCATCCTCAA TGATGTAGAC ATCGTATTGC TTTGCTAATT TTACGATGGC
TGTTTTTGTT GCTATATCAT AGGTTGAACC GAGAGGGTTG TGCAAGCGAG
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CGAATGAGCT CTATCATTCG TGAATAGGTA GGGTTCTCTA TCAAGATTTC CGTTTTTCCA
GCCAAGGTTT CCATTTGTGT GAGAATATAT AGAGCTTGTT GACTACCAGC
TGTGATAACC AGCTGGTCTT TTTTTGTATA GACATGATAG TCCATTAACA GACTTTGAAC
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CCATGTATCG CTATAACATC CTAGATTTCC GGTATTTAAA CTATATTGTG
ACGCTTTTGC TAGTAGGAGT GGCAGTATTG GCTGGATTAT TGATGTGGCG TAAGAAAGCG
CGCATATTTA CAGCGCTCTT ACTTGTTTTT TCACTGGTCA TCACGTCTGT
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Fig. 3   DNA Serotype 2

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CGGACGTTCG TCAGCTTACT AGTATCCTTG CTCCAGCCGA ATACGACCAA GATAACATCA
CCGCTTTATT GGATGACATA TCCAAAATGG AATCTACTCA ACTAGCAACT
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GGAGGCGTAT CAGCTTGTAA AAAAAGAGTA TGGTGAGGAT AGAGCGAAGG
```

Fig. 3 cont.

CTTTGTTCAA GAAAAATCCT TTGTTGATAT TGAAAAATCA AGTACAGTAA CCTCATAGAA
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AAAACAATCA CCTCATATCA AAGATGACCA AATCAGTGTA ATCTACAATG
GGGTAGATAA TAAAGTGTTT TATCAGTCCG ATGCTCGGTC TGTTCGAGAA AGATTTGACA
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Fig. 3 cont.

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AAAGGACAAG GAGATTTTTT AGAAGCAGTT GCTCCTATAC TCGAACAGAA TCCAAAAGCT
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CAAGTACTAA TCCAGACCCT CTACCAACGG TTGTACTAAA AGCAATGGCA TGCGGTAAAC
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TAACAGAAGG GAGCCTTCAA AAACTTCATT TTTAATTGGA TTGTAGAAAA
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CTATGCACTA TATTTCGAAA AATATATGGT GTAAAATCAG AACTGATGGT
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AGCGAAAACA AAAAGAAAAG AAATTTCTAA AACCTATTAT ATTTGTATTA
GATGGGTTAA AAGGAGATGA GTATATTCAT CCCAATCCAT CAAATCATTT GACGATCTTA
ACTGAAATGT ATAACGTCAG AGGCTTACTT ACCGATAATC ACCAAATTAA
ATTTCTCAAA GTTAATTATA GATTAATTAT AACTCCAGAT TTTGCTAAGT TTTTACCGCA
TGAATTTATT GTTGTACCAG ATACCTTGGA TATAGAGCAA GTTAAAAGCC
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Fig. 3. cont.

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CACTTATCGC TTGCTCTATG AGTTAGAAAA AGTTGCAATA GTTAAGGAGT
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GCTTCCATTG CCTACTGGAA TTTCAAAATG AACGAATGGA CTTCTATGAA
AGTAGAGGAG ATAAAGAGCT CTTACTAGAG TGTTATCGTT CATTTTTAGC CTTTGCTGTT
TTGTTTTTAG GCAAATATAA TCATTGGTTG AGCAAACAGC AAAAGAAGCT
TCTCCAAACG CTATTTAGAA TTGTATATAA ACAATTGAAG CAAAATAAGC GACTTGCTTT
ACTAATGAAT GCTTATTATT TGGTAGGGTG TCTTCATCTT AATTTTAGTG
TCTTTCTGAA AACGGGGAAA GATAAAATTC AAGAAAGATT GAGAAGAAGT GAAAGTAGTA
CTCGGTAAGA ATGTTGTAAT AAATGGTTGA AAGAAAGGG GATTAAAATG
AATCCAACAA ATAGTAGAAT AGCACTCTTT GATACGATTA AATGTATCAT GGTACTTTGT
GTTATTTTTA CACATCTGGA TTGGTCTGTT GAGCAGCGTC AATGGTTTAT
CTTTCCGTAT TTCGTTGACA TGGCTGTTCC AATTTTTCTG TTGCTTTCTG CCTATTTTCG
AACGAATAAG TGGAATACAA AACAAGAGAC GCTAAAGCTC AAGTTCAGCA
GTGGTATAAA AGAAAGTATA AACATGCTTT GTCTCTATGC TATCGTGATG GCTGTTAATG
TTTTATTGAG CTATTCGAGA ACCATCTGAT AGGAGTAAAG CCTTTTTCAG
GTTCTTCATC GCTCCGTTCA TTTGTCCTGT GGCTACTTTC TGGAGAATCG GGTCCAGGGA
GTTGGGAGTT ACTATGTTCC GTTGTTGATT CAGGTAGTTT TTTTATTACC
AATTTTGTAT GTTCTTTTCG AGAAAAATAA ATGGTTGGGC TTGCTTACTT GTTTTTTAGT
AAACTTTTCA GTGGATGCCA TATTTGCTAA CATGGCTGAA CACGGCATAT
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AGCAGGATGT GCGTTCCAAG GTAGATACTT TCATTGCGAC CCTATTTGGG
ATTATTGGAG CAATTCTGAT TTTTGTGAAT CATTCTATAG AGCCCTTCTC CTGGTTTTAT
GGTTGGAAGT CTACTTCCTT TCTATGCGTC CCATTTGCGT ATGCTATGCT
ATTTTTTATG ATAAAGTATG GACAGAAGAT TCCAGCAATA CTGTTGTCAA AATTGGGAGT
TGCTTCTTAT CATATCTACT TGACCCAGAT GCTGTATTTT TCAGTAGTCG
```

Fig. 3 cont.

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CACCATTTTT AGCAGTGCAA TTTAAGGTAT CTTCGTTGAA TTTGTGGAAC GGCTTGTTTA
CCTTTCTAAT TTGCCTGTTT GGTGGCTATA TTTTCTACAA AGTGGATCTG
TTTATGAGAG TACGTGGAAA ACGATAATGA CTCATTTCAG ATTAGCAGAT GCCATTTCGT
TTATTAGCAG ATTCGCATGT TAATATTCCG ACAAAGAAAT TCAAATAGGT
TGACGAGAGA GGAGTGGTAT CTGTTTCTAA ACCCCAGTAT CCCCCTTTAT TTTCAAAGCT
ATATTTATTA ACTGAACAAG GAGAATTTTT AAGAGAACTG TTTGTTTAAT
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ACCCATGATT TTTCACACGA TTGATGTGGC AATTGAATCA GGTTGTTTTG
AGAAAGAAGA CATCTATGTC AGTACGGATT CAGAAATGTA TAAGGGGGGC ACCTCTATAA
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TCAATGTATT GTTAAGACCC AAAGAACTAT CTACTTATCA TACTCCATCG
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TTCTTTGATA GCTAGATCAA AAACAAAAGA ACGCCTTTCC TTGTTACAGA GCTATGACGA
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GCGATTTGGA GTCAATTCAA TCATCTGTCT GGAAAAGACT CTTTTATCAA
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AATGATCTGT CGCTCGTACA ATTTGACTAG GCTTATAAAC CCTTTGTAGA
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GATTGCTATT ATTGACCCAG CCCTTGTCTT GGGATTATCA TGTGACCGAA GAGAGTTGTT
GGAGATTTAT GTAGCAGGTC TTGCCCCTTA TCGGGAAGAC TATACAATCT
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TTCTGCCTCA AGGTATTCCG TTTGAGTTGT TCGAAATGGC AGGTAATATC
CGTTTTGATA TCGGTATGAC CTATAGTTCG TCTGCTTTAG ATTTTTTAAA TTGTTTTGAA
GAGAAAGTGT ATTTAAAGGA CACTTTTCCT CTTCTTTCAA AAAATGATAT
TTTGCGTGAG GGGATAGAAT AGGAGGATTC ATGTCTAAAA AATCAATAGT TGTCTCAGGT
CTCGTCTATA CGATTGGAAC CATCCTCGTT CAGGGATTAG CCTTCATTAC
CCTCCCCATC TATACTCGTG TCATTTCTCA GGAAGTATAT GGGCAGTTTA GCTTGTATAA
TTCGTGGGTG GGGCTAGTTG GTCTCTTTAT CGGTCTACAG TTAGGTGGGG
CTTTTCTCTTC TATCGCTTTC TTTTTACCAA TTTTTGGGCT ATCTTTTCTC
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TGCTTTATCT TTATTTCTCA TCTTTTCGAT GGAGAATGAT TTCATCGCTC
GTGTAATGGC AAACTCGGCA ACGACTGGTG TTTTTGCTTG TGTGTCCTTG TTGTTTTTCT
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TATAGCAGGT GTACTAAATA TTTCCGTCCA CTTTGTTTTG ATACCGACAA AGAATTTATG
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ATTTTGTTGC TAAGAAAAAG TATGCTTACG ATGAAGTTGC GATTTCAACA TTTGTTAAGG
TAATTGCTCT TGTTGTCGTC TATACAGGCT TGATGACAGT ATTTGTCGGT
TCAATCTGGA TTCGTTGGTC ACTAGGAATA GCGGTTCTAG TCGTTTATGC CTACATTTTT
AGAAAGGAAT TAACAGTTGC CCTCAATACA TTCAGGGAAA AACGGTCTAA
```

Fig. 3 cont.

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ATAAGGGCAC CTCTATAAAC TCCCAAAATT GCGAATTTGG AGTTACGAAA GCCTTGTTAA
ATCAAACATT TTAAATTTTA GAAAATTAGT TTTTAGAGGT CCCCATATAA
AAACGTCCCA AATGAGAGGT GCTCATAAGA ATTGACCATC ACTGCCATCT ACCCAAAGTT
CAAGTATTCT CTACCATGAA AATTGTGCTA TAATCAAGTA TAAAGAAGGG
AATGTTTCTT AAAGGACGTA TGCGCCTCTG CTTATGCCAG AAGTCATGAG GTAAATCTCC
CTAAAAATTG GGTAGAAAAG CAGATTAAAC TTCCACCAAT CTATTGAAGA
TCGTGTTGAA GAGCAGGCTT TAGAAGCAAC AAGCCCTGAG ACTATTCGAA AGAAATCTAG
GGCTATTTTT TCTAATCGGC TATCAGAAGT GAAGTAGCGA TCTTTATTAG
TGTTCTTTTA CTACTTAAGG AAAACCAAGC TGCTCCCTCA AGACTTTATG GGAGCGATTT
ACAGTCATTT TTAGAAAGGA AATAAAATGG TTTATATTAT TGCAGAAATT
GGTTGTAATC ACAACGGTGA TGTTCATCTA GCACGGAAAA TGGTAGAAGT TGCCGTTGAT
TGTGGTGTGG ATGCCGTTAA ATTTCAGACA TTTAAGGCAG ATTTGTTGAT
TTCAAAATAC GCACCAAAGG CCGAATACCA AAAAATTACA ACAGGAGAGT CAGATTCTGA
GCTCGAAATG ACTCGTCGTT TGGAATTGAG CTTTGAAGAG TATCTTGATT
TGCGTGATTA CTGTCTTGAA AAGGGAGTTG ATGTGTTTTC GACACCTTTT GATGAGGAAT
CATTGGACTT CTTGATTAGC ACAGATATGC CCGTTTATAA GATTCCATCT
GGTGAGATTA CCAATCTTCC CTATTTGGAA AAAATTGGTC GTCAAGCTAA GAAAGTTATT
CTTTCAACTG GTATGGCTGT TATGGATGAA ATTCATCAAG CGGTGAAGAT
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TTATGCGTCG CTTATTGAGC TATCTACAGG ATGATCCAGA AATGGAGCTG
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GAAGCGGACA AGCGTAGGAT TGTCAAGCGG ATTCCATTGC ATTTGACGGA
TACGTCTAAG CAGACAATCG TCAAATCTTT AGCGACCTTG ACAGAGCAAC TCACGGTTCT
TTTTGAAGAA GTCCAGTATG ACTTGGTGTT GATTCTGGGG GATCGCTATG
AGATGCTACC AGTTGCCAAT GCTGCGTTGC TTTATAATAT TCCTATTTGC CATATTCATG
GTGGTGAAAA AACCATGGGA AATTTTGATG AGTCGATTCG CCATGCCATT
ACCAAGATGA GTCACCTTCA TCTGACATCA ACGGATGAAT TTAGAAATCG TGTCATTCAA
CTAGGAGAAA ATCCAACCAT GTACTGAACA TCGGAGCTAT GGGTGTTGAA
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TACTCCAGGA GTGACCATAA ATGGCTTGTG CCGTATCGGA GAAAGCACTT
ATATTGGAAG TGGTTCAACA GTGATTCAAT GTATCGAGAT TGCACCTTAT ACAACATTGG
GGGCAGGGAC AGTTGTTTTG AAATCGTTGA CGGAGTCAGG GACCTATGTT
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Fig. 3 cont.

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GGTGTACCTG CTAGAAAGAT TAAATAGGTG AATTGATGGA ACCAATTTGT CTGATTCCTG
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GGTGTACCGA TGATTTTCCA TACCATTCGA GCTGCGATTG AGTCTGGATG TTTTAAGAAA
GAAAATATAT ATGTCAGTAC TGATTCAGAG GTTTACAAGG AAATTTGTGA
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TTGTTCTCCT GCAAGTTACG TCCCCATTAA GATCGGGAAA ACATGTCAAG GAGGCGATGG
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GGATTAGGTG GCAGTTATCG TCGTCAAGAT GAGAAAACAC TCTACTATCC
TAATGGAGCG ATTTATATTT CTTCTAAGCA GGCTTATTTA GCGGATAAAA CTTATTTTTC
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AAATCTTGTC AAAACTATCA GAGAAAGGCA ATCCCTTAGA ACGTTTGGAT
GCCGTTATGG ATTGGAATAT CTTTCTTCCA TTGTTGTCAG AGTTATTCAG TCGTAAAGAT
AAAGTCATCA GTCGTGGCGG TCGTCCTCAC CTAGACTATC TCATGATGTT
CAAAGCGCTC TTGCTTCAAC GTCTTCATAA CCTATCTGAC GATGCCATGG AATATCAACT
GCTGGATCGT ATATCTTTTC GTCGTTTTGT TGGTTGTCAT GAAGACACTG
TTCCCGATGC GAAAACTATC TGGCTCTATC GTGAGAAATT AACCAAGTCA GGTCGTGAAA
AGGAGTTGTT CGATTTGTTC TATGCCCATC TCACAGATGA AGGGGTGATT
GCCCATTCAG GTCAGATTGT GGATGCTACC TTTGTCGAAT GCCCTAAACA ACGCAATTCA
CGTGAGGACA ATCAGAAAAT CAAAACTTAT CGAAAATTAT GAGGTCACAA
CAGCTAGTGT ACACGACTCC AATGTCCTAG CTCCTCTTTG TGATGCCAAT GAAGCGGTTT
TTGATGACAG TGCTTATGTT GGAAAATCAG TACCAGAAGG TTGTCGCCAC
CACACGATTC GTCGTGCTTT TAGAAATAAA CCGTTGACTG AGACTGATAA GGTCATTAAT
CGACATATTA CCAAAGTCCG TTGTCGCGTT GAGCATGGTT TTGGCTTCAT
TGAAACTAAC ATGAAAGGTA ACATCTGTCG AGCAATTGGG AAGGCACGAG CTGAAACCAA
TGTGACCTTA ACCAACCTGC TCTACAATAT CTGTCGTTTT GAGCAAATCA
AACGACTGGG ATTACCATCC GTGGGCTTAG TGCGCCCAAA AAATAGGAAA ATAAGCAAAA
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CATTCCTCCA TTATATAGTT AAATGAAACA AAAACAGTAC ATCTATGATA TAATGTATTT
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AACCGGCAGT ATTACTGAAG CATCAGCTAT TTTCCAAGTT TCACGTAACA CTATCTATCA
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GAACCAAGCC AAGAAAAGTG GATAGAGATA AATTAAAGAA TTATCTTGAA ACTCATCCAG
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ATTCATTACC CCCTCAAAGC TATGGGATAT ACTCGAAAAA AAAGAGCTGT ACCTACTATG
AACAAGACCC TGAAAAAGTA GAACTGTTCC TTAAAGAATT GAATAACTTA
AGCCACTTGA CTCCTGTTTA TATTGACGAG ACAGGGTTTG AGACATATTT TCATCGAAAA
TATGGTCGCT CTTTGAAAGG TCAGTTGATA AAAGGTAAGG TCTCTGGAAG
AAGATACCAG CGGATATCTT TAGTAGCAGG TCTCATAAAT GGTGCGCTTA TAGCCCCGAT
GACATACAAA GATACTATGA CGAGTGGCTT TTTCGAAGCT T
```

Fig. 3 cont.

SLDIDHMMEVMEASKSAAGSACPSPQAYQAAFEGAENIIVVTITGGLSGSFNAARVARDM
YIEEHPNVNIHLIDSLSASGEMDLLVHQINRLISAGLDFPQVVEAITHYREHSKLLFVLA
KVDNLVKNGRLSKLVGTVVGLLNIRMVGEASAEGKLELLQKARGHKKSVTAAFEEMKKAG
YDGGRIVMAHRNNAKFFQQFSELVKASFPTAVIDEVATSGLCSFYAEEGGLLMGYEVKA

Fig. 3 cont.   ORF2Z

MKKYQVIIQDILTGIEEHRFKRGEKLPSIRQLREQYHCSKDTVQKAMLELKYQNKIYAVE
KSGYYILEDRDFQDHTCRAQSYRLSRITYEDFRICLKESLIGRENYLFNYYHQQEGLAEL
ISSVQSLLMDYHVYTKKDQLVITAGSQQALYILTQMETLAGKTEILIENPTYSRMIELIR
HQGIPYQTIERNLDGIDLEELESIFQTGKIKFFYTIPRLHNPLGSTYDIATKTAIVKLAK
QYDVYIIEDDYLADFDSSHSLPLHYLDTDNRVIYIKSFTPTLFPALRIGAISLPNQLRDI
FIKHKSLIDYDTNLIMQKALSLYIDNGMFARNTQHLHHIYHAQWNKIKDCLEKYALNIPY
RIPKGSVTFQLSKGILSPSIQHMFGKCYYFSGQKADFLQIFFEQDFADKLEQFVRYLNE

Fig. 3 cont.   ORF2Y

MKIIIPNAKEVNTNLENASFYLLSDRSKPVLDAISQFDVKKMAAFYKLNEAKAELEADRW
YRIRTGQAKTYPAWQLYDGLMYRYMDRRGIDSKEENYLRDHVRVATALYGLIHPFEFISP
HRLDFQGSLKIGNQSLKQYWRPYYDQEVGDDELILSLASSEFEQVFSPQIQKRLVKILFM
EEKAGQLKVHSTISKKGRGRLLSWLAKNNIQELSDIQDFKVDGFEYCTSESTANQLTFXR
SIKM

Fig. 3 cont.   **ORF2X**

MKKRSGRSKSSKFKLVNFALLGLYSITLCLFLVTMYRYNILDFRYLNYIVTLLLVGVAVL
AGLLMWRKKARIFTALLLVFSLVITSVGIYGMQEVVKFSTRLNSNSTFSEYEMSILVPAN
SDITDVRQLTSILAPAEYDQDNITALLDDISKMESTQLATSPGTSYLTAYQSMLNGESQA
MVFNGVFTNILENEDPGFSSKVKKIYSFKVTQTVETATKQVSGDSFNIYISGIDAYGPIS
TVSRSDVNIIMTVNRATHKILLTTTPRDSYVAFADGGQNQYDKLTHAGIYGVNASVHTLE
NFYGIDISNYVRLNFISFLQLIDLVGGIDVYNDQEFTSLHGNYHFPVGQVHLNSDQALGF
VRERYSLTGGDNDRGKNQEKVIAALIKKMSTPENLKNYQAILSGLEGSIQTDLSLETIMS
LVNTQLESGTQFTVESQALTGTGRSDLSSYAMPGSQLYMMEINQDSLEQSKAAIQSVLVE
K

Fig. 3 cont.   **CPS2A**

MNNQEVNAIEIDVLFLLKTIWRKKFLILLTAVLTAGLAFVYSSFLVTPQYDSTTRIYVVS
QNVEAGAGLTNQELQAGTYLAKDYREIILSQDVLTQVATELNLKESLKEKISVSIPVDTR
IVSISVRDADPNEAARIANSLRTFAVQKVVEVTKVSDVTTLEEAVPAEEPTTPNTKRNIL
LGLLAGGILATGLVLVMEVLDDRVKRPQDIEEVMGLTLLGIVPDSKKLK

Fig. 3 cont.　　　　　　　　　**CPS2B**

MAMLEIARTKREGVNKTEEYFNAIRTNIQLSGADIKVVGITSVKSNEGKSTTAASLAIAY
ARSGYKTVLVDADIRNSVMPGFFKPITKITGLTDYLAGTTDLSQGLCDTDIPNLTVIESG
KVSPNPTALLQSKNFENLLATLRRYYDYVIVDCPPLGLVIDAAIIAQKCDAMVAVVEAGN
VKCSSLKKVKEQLEQTGTPFLGVILNKYDIATEKYSEYGNYGKKA

Fig. 3 cont.   CPS2C

MIDIHSHIIFGVDDGPKTIEESLSLISEAYRQGVRYIVATSHRRKGMFETPEKIIMINFL
QLKEAVAEVYPEIRLCYGAELYYSKDILSKLEKKKVPTLNGSCYILLEFSTDTPWKEIQE
AVNEMTLLGLTPVLAHIERYDALAFQSERVEKLIDKGCYTQVNSNHVLKPALIGERAKEF
KKRTRYFLEQDLVHCVASDMHNLYSRPPFMREAYQLVKKEYGEDRAKALFKKNPLLILKN
QVQ

Fig. 3 cont.   CPS2D

MNIEIGYRQTKLALFDMIAVTISAILTSHIPNADLNRSGIFIIMMVHYFAFFISRMPVEF
EYRGNLIEFEKTFNYSIIFVIFLMAVSFMLENNFALSRRGAVYFTLINFVLVYLFNVIIK
QFKDSFLFSTTYQKKTILITTAELWENMQVLFESDILFQKNLVALVILGTEIDKINLPLP
LYYSVEEAIGFSTREVVDYVFINLPSEYFDLKQLVSDFELLGIDVGVDINSFGFTVLKNK
KIQMLGDHSIVTFSTNFYKPSHIWMKRLLDILGAVVGLIISGIVSILLIPIIRRDGGPAI
FAQKRVGQNGRIFTFYKFRSMFVDAEVRKKELMAQNQMQGGMFKMDNDPRITPIGHFIRK
TSLDELPQFYNVLIGDMSLVGTRPPTVDEFEKYTPSQKRRLSFKPGITGLWQVSGRSDIT
DFNEVVRLDLTYIDNWTIWSDIKILLKTVKVVLLREGGQ

Fig. 3 cont.   **CPS2E**

MRTVYIIGSKGIPAKYGGFETFVEKLTEYQKDKSINYFVACTRENSAKSDITGEVFEHNG
ATCFNIDVPNIGSAKAILYDIMALKKSIEIAKDRNDTSPIFYILACRIGPFIYLFKKQIE
SIGGQLFVNPDGHEWLREKWSYPVRQYWKFSESLMLKYADLLICDSKNIEKYIHEDYRKY
APETSYIAYGTDLDKSRLSPTDSVVREWYKEKEISENDYYLVVGRFVPENNYEVMIREFM
KSYSRKDFVLITNVEHNSFYEKLKKETGFDKDKRIKFVGTVYNQELLKYIRENAFAYFHG
HEVGGTNPSLLEALSSTKLNLLLDVGFNREVGEEGAKYWNKDNLHRVIDSCEQLSQEQIN
DMDSLSTKQVKERFSWDFIVDEYEKLFKG

Fig. 3 cont.   **CPS2F**

MKKILYLHAGAELYGADKVLLELIKGLDKNEFEAHVILPNDGVLVPALREVGAQVEVINY
PILRRKYFNPKGIFDYFISYHHYSKQIAQYAIENKVDIIHNNTTAVLEGIYLKRKLKLPL
LWHVHEIIVKPKFISDSINFLMGRFADKIVTVSQAVANHIKQSPHIKDDQISVIYNGVDN
KVFYQSDARSVRERFDIDEEALVIGMVGRVNAWKGQGDFLEAVAPILEQNPKAIAFIAGS
AFEGEEWRVVELEKKISQLKVSSQVXRMDYYANTTELYNMFDIFVLPSTNPDPLPTVVLK
AMACGKPVVGYRHGGVCEMVKEGVNGFLVTPNSPLNLSKVILQLSENINLRKKIGNNSIE
RQKEHFSLKSYVKNFSKVYTSLKVY

Fig. 3 cont.   CPS2G

MKIISFTMVNNESEIIESFIRYNYNFIDEMVIIDNGCTDNTMQIIFNLIKEGYKISVYDE
SLEAYNQYRLDNKYLTKIIAEKNPDLIIPLDADEFLTADSNPRKLLEQLDLEKIHYVNWQ
WFVMTKKDDINDSFIPRRMQYCFEKPVWHHSDGKPVTKCIISAKYYKKMNLKLSMGHHTV
FGNPNVRIEHHNDLKFAHYRAISQEQLIYKTICYTIRDIATMENNIETAQRTNQMALIES
GVDMWETAREASYSGYDCNVIHAPIDLSFCKENIVIKYNELSRETVAERVMKTGREMAVR
AYNVERKQKEKKFLKPIIFVLDGLKGDEYIHPNPSNHLTILTEMYNVRGLLTDNHQIKFL
KVNYRLIITPDFAKFLPHEFIVVPDTXDIEQVKSQYVGTGVDLSKIISLKEYRKEIGFIG
NLYALLGFVPNMLNRIYLYIQRNGIANTIIKIKSRL.

Fig. 3 cont.   CPS2B

MQADRRKTFGKMRIRINNLFFVAIAFMGIIISNSQVVLAIGKASVIQYLSYLVLILCIVN
DLLKNNKHIVVYKLGYLFLIIFLFTIGICQQILPITTKIYLSISMMIISVLATLPISLIK
DIDDFRRISNHLLFALFITSILGIKMGATMFTGAVEGIGFSQGFNGGLTHKNFFGITILM
GFVLTYLAYKYGSYKRTDRFILGLELFLILISNTRSVYLILLLFLFLVNLDKIKIEQRQW
STLKYISMLFCAIFLYYFFGFLITHSDSYAHRVNGLINFFEYYRNDWFHLMFGAADLAYG
DLTLDYAIRVRRVLGWNGTLEMPLLSIMLKNGFIGLVGYGIVLYKLYRNVRILKTDNIKT
IGKSVFIIVVLSATVENYIVNLSFVFMPICFCLLNSISTMESTINKQLQT

Fig. 3 cont.   CPS2I

MEKVSIIVPIFNTEKYLRECLDSIISQSYTNLEILLIDDGSSDSSTDICLEYAEQDGRIK
LFRLPNGGVSNARNYGIKNSTANYIMFVDSDDIVDGNIVESLYTCLKENDSDLSGGLLAT
FDGNYQESELQKCQIDLEEIKEVRDLGNENFPNHYMSGIFNSPCCKLYKNIYINQGFDTE
QWLGEDLLFNLNYLKNIKKVRYVNRNLYFARRSLQSTTNTFKYDVFIQLENLEEKTFDLF
VKIFGGQYEFSVFKETLQWHIIYYSLLMFKNGDESLPKKLHIFKYLYNRHSLDTLSIKRT
SSVFKRICKLIVANNLFKIFLNTLIREEKNND

Fig. 3 cont.   CPS2J

```
MINISIIVPI YNVEQYLSKC INSIVNQTYK HIEILLVNDG STDNSEEICL AYAKKDSRIR
YFKKENGGLS DARNYGISRA KGDYLAFIDS DDFIHSEFIQ RLHEAIEREN
ALVAVAGYDR VDASGHFLTA EPLPTNQAVL SGRNVCKKLL EADGHRFVVA WNKLYKKELF
EDFRFEKGKI HEDEYFTYRL LYELEKVAIV KECLYYYVDR ENSIITSSMT
DHRFHCLLEF QNERMDFYES RGDKELLLEC YRSFLAFAVL FLGKYNHWLS KQQKKLLQTL
FRIVYKQLKQ NKRLALLMNA YYLVGCLHLN FSVFLKTGKD KIQERLRRSE
SSTR
```

Fig. 3 cont.   **CPS2K**

```
MSKKSIVVSG LVYTIGTILV QGLAFITLPI YTRVISQEVY GQFSLYNSWV GLVGLFIGLQ
LGGAFGPGWV HFREKFDDFV STLMVSSIAF FLPIFGLSFL LSQPLSLLFG
LPDWVVPLIF LQSLMIVVQG FFTTYLVQRQ QSMWTLPLSV LSAVINTALS LFLTFPMEND
FIARVMANPA TTGVLACVSX WFSQKKNGLH FRKDYLRYGL SISIPLIFHG
LGHNVLNQFD RIMLGKMLTL SDVALYSFGY TLASILQIVF SSLNTVWCPW YFEKKRGADK
DLLSYVRYYL AIGLFVTFGF LTIYPELAML LGGSEYRFSM GFIPMIIVGV
FFVFLYSFPA NIQFYSGNTK FLPIGTFIAG VLNISVHFVL IPTKNLWCCF ATTASYLLLL
VLHYFVAKKK YAYDEVAIST FVKVIALVVV YTGLMTVFVG SIWIRWSLGI
AVLVVYAYIF RKELTVALNT FREKRSK
```

Fig. 3 cont.   CPS20

```
MVYIIAEIGC NHNGDVHLAR KMVEVAVDCG VDAVKFQTFK ADLLISKYAP KAEYQKITTG
ESDSQLEMTR RLELSFEEYL DLRDYCLEKG VDVFSTPFDE ESLDFLISTD
MPVYKIPSGE ITNLPYLEKI GRQAKKVILS TGMAVMDEIH QAVKILQENG TTDISILHCT
TEYPTPYPAL NLNVLHTLKK EFPNLTIGYS DHSVGSEVPI AAAAMGAELI
EKHFTLDNEM EGPDHKASAT PDILAALVKG VRIVEQSLGK FEKEPEEVEV RNKIVARKSI
VAKKAIAKGE VFTEENITVK RPGNGISPME WYKVLGQVSE QDFEEDQNIC
HSAFENQM
```

Fig. 3 cont.   CPS2P

MKKICFVTGS RAEYGIMRRL LSYLQDDPEM ELDLVVTAMH LEEKYGMTVK DIEADKRRIV
KRIPLHLTDT SKQTIVKSLA TLTEQLTVLF EEVQYDLVLI LGDRYEMLPV
ANAALLYNIP ICHIHGGEKT MGNFDESIRH AITKMSHLHL TSTDEFRNRV IQLGENPTMY

Fig. 3 cont.   CPS2Q

MELGIDFAED YYVVLFHPVT LEDNTAEEQT QALLDALKED GSQCLIIGSN SDTHADKIME
LMHEFVKQDS DSYIFTSLPT RYYHSLVKHS QGLIGNSSSG LIEVPSLQVP
TLNIGNRQFG RLSGPSVVHV GTSKEAIVGG LGQLRDVIDF TNPFEQPDSA LQGYRAIKEF
LSVQASTMKE FYDR

Fig. 3 cont.   **CPS2R**

```
MKKVAFLGAG TFSDGVLPWL DRTRYELIGY FEDKPISDYR GYPVFGPLQD VLTYLDDGKV
DAVFVTIGDN VKRKEIFDLL AKDHYDALFN IISEQANIFS PDSIKGRGVF
IGFSSFVGAD SYVYDNCIIN TGAIVEHHTT VEAHCNITPG VTINGLCRIG ESTYIGSGST
VIQCIEIAPY TTLGAGTVVL KSLTESGTYV GVPARKIK
```

Fig. 3 cont.   **CPS2S**

MEPICLIPAR SGSKGLPNKN MLFLDGVPMI FHTIRAAIES GCFKKENIYV STDSEVYKEI
CETTGVQVLM RPADLATDFT TSFQLNEHFL QDFSDDQVFV LLQVTSPLRS
GKHVKEAMEL YGKGQADHVV SFTKVDKSPT LFSTLDENGF AKDIAGLGGS YRRQDEKTLY
YPNGAIYISS KQAYLADKTY FSEKTAAYVM TKEDSIDVDD HFDFTGVIGR
IYFDYQRREQ QNKPFYKREL KRLCEQRVHD SLVIGDSRLL ALLLDGFDNI SIGGMTASTA
LENQGLFLAT PIKKVLLSLG VNDLITDYPL HMIEDTIRQL MESLVSKAEQ
VFVTTIAYTL FRDSVSNEEI VQLNDVIVQS ASELGISVID LNEVVEKEAM LDYQYTNDGL
HFNQIGQERV NQLILTSLTR

Fig. 3 cont.   **CPS2T**

```
ATCGCCAAAC GAAATTGGCA TTATTTGATA TGATAGCAGT TGCAATTTCT GCAATCTTAA CAAGTCATAT
ACCAAATGCT GATTTAAATC GTTCTGGAAT TTTTATCATA
ATGATGGTTC ATTATTTTGC ATTTTTTATA TCTCGTATGC CAGTTGAATT TGAGTATAGA GGTAATCTGA
TAGAGTTTGA AAAAACATTT AACTATAGTA TAATATTTGC
AATTTTTCTT ACGGCAGTAT CATTTTTGTT GGAGAATAAT TTCGCACTTT CAAGACGTGG TGCCGTGTAT
TTCACATTAA TAAACTTCGT TTTGGTATAC CTATTTAACG
TAATTATTAA GCAGTTTAAG GATAGCTTTC TATTTTCGAC AATCTATCAA AAAAAGACGA TTCTAATTAC
AACGGCTGAA CGATGGGAAA ATATGCAAGT TTTATTTGAA
TCACATAAAC AAATTCAAAA AAATCTTGTT GCATTGGTAG TTTTAGGTAC AGAAATAGAT AAAATTAATT
TATCATTACC GCTCTATTAT TCTGTGGAAG AAGCTATAGA
GTTTTCAACA AGGGAAGTGG TCGACCACGT CTTTATAAAT CTACCAAGTG AGTTTTTAGA CGTAAAGCAA
TTCGTTTCAG ATTTTGAGTT GTTAGGTATT GATGTAAGCG
TTGATATTAA TTCATTCGGT TTTACTGCGT TGAAAAACAA AAAAATCCAA CTGCTAGGTG ACCATAGCAT
TGTAACTTTT TCCACAAATT TTTATAAGCC TAGTCATATC
ATGATGAAAC GACTTTTGGA TATACTCGGA GCGGTAGTCG GGTTAATTAT TTGTGGTATA GTTTCTATTT
TGTTAGTTCC AATTATTCGT AGAGATGGTG GACCGGCTAT
TTTTGCTCAG AAACGAGTTG GACAGAATGG ACGCATATTT ACATTCTACA AGTTTCGATC GATGTATGTT
GATGCTGAGG AGCGCAAAAA AGACTTGCTC AGCCAAAACC
AGATGCAAGG GTGGGTATGT TTTAAAATGG GAAAAACGAT CCTAGAATTA CTCCAATTGG ACATTTCATA
CGCAAAAACA AGTTTAGACG AGTTACCACA GTTTTATAAT
GTTTTAATTG GCGATATGAG TCTAGTTGGT ACACGTCCAC CTACAGTTGA TGAATTTGAA AAATATACTC
CTGGTCAAAA GAGACGATTG AGTTTTAAAC CAGGGATTAC
AGGTCTCTGG CAGGTTAGTG GTCGTAGTAA TATCACAGAC TTCGACGACG TAGTTCGGTT GGACTTAGCA
TACATTGATA ATTGGACTAT CTGGTCAGAT ATTAAAATTT
TATTAAAGAC AGTGAAAGTT GTATTGTTGA GAGAGGGAAG TAAGTAAAAG TATATGAAAG TTTGTTTGGT
CGGTTCTTCA GGGGGACATT TGACTCACTT GTATTTGTTA
AAACCGTTTT GGAAGGAAGA AGAACGTTTT TGGGTAACAT TTGATAAAGA GGATGCAAGA AGTCTTTTGA
AGAATGAAAA AATGTATCCA TGTTACTTTC CAACAAATCG
CAATCTCATT AATTTAGTGA AAAATACTTT CTTAGCTTTC AAAATTTTAC GTGATGAGAA ACCAGATGTT
ATTATTTCAT CTGGTGCGGC CGTTGCTGTC CCCTTCTTTT
ACATCGGAAA ACTATTTGGA GCAAAGACGA TTTATATTGA AGTATTTGAT CGAGTTAATA AATCTACATT
AACTGGAAAA CTAGTTTATC CCGTAACAGA TATTTTTATT
GTTCAGTGGG AAGAAATGAA GAAGGTATAT CCTAAATCTA TTAACTTGGG GAGTATTTTT TAATGATTTT
TGTAACAGTA GGAACTCATG AACAACAGTT TAATCGATTG
ATAAAAGATA TTGATTTATT GAAAAAAAAT GGAAGTATAA CCGACGAAAT ATTTATTCAA ACAGGATATT
CTGACTATAT TCCAGAATAT TGCAAGTATA AAAAATTTCT
CAGTTACAAA GAAATGGAAC AATATATTAA CAAATCAGAA GTAGTTATTT GCCACGGAGG CCCCGCTACT
TTTATGAATT CATTATCCAA AGGAAAAAAA CAATTATTGT
TTCCTAGACA AAAAAAGTAT GGTGAACATG TAAATGATCA TCAAGTAGAG TTTGTAAGAA GAATTTTACA
AGATAATAAT ATTTTATTTA TAGAAAATAT AGATGATTTG
TTTGAAAAAA TTATTGAAGT TTCTAAGCAA ACTAACTTTA CATCAAATAA TAATTTTTTT TGTGAAAGAT
TAAAACAAAT AGTTGAAAAA TTTAATGAGG ATCAAGAAAA
TGAATAATAA AAAAGATGCA TATTTGATAA TGGCTTATCA TAATTTTTCT CAGATTTTAC TGGAGAGGGA
TACAGATATT ATCATCTTCT CTCAGGAGAA TGCACACCAT
TAGTTCCTTC AGAATACCTG TATAATTATT TTAAATATTC TCAGGATTTA TATGTTGAAT TTACAAAAGA
TGAGCAAAAA TATAAAGAAA ATAGGATATA TGAACGAGTT
AAATGTTACA GATTATTTCC TAATATATCA GAAAAAAACTA TTGATAATGT ACTGTTTAGA ATTTTATTAA
GAATGTATCG AGCTTTTGAA TACTATTTAC AAAGATTGTT
GTTTATTGAT AGAATAAAAA ACATGGTCTA AGAATAAGAT TTGGTTCTAA TTGGGTTTCG CTTCCACATG
ATTTTGTGGC AATTCTTTTA TCAAATGAAA ACGAAACAGC
TTATTTATTT AAGTAATCTA AATGTCCAGA TGAACTATTT ATACAGACAA TTATAGAAAA ATATGAATTT
TCAAATAGAT TATCTAAATA TGGAAATTTA AGATATATAA
AGTGGAAAAA ATCAACATCT TCTCCTATTG TCTTTACAGA TGATTCTATT GATGAATTGC TAAATGCAAG
AAATTTAGGT TTTTTATTTG CTAGAAAGTT AAAAATAGAA
AATAAATCTA AATTTAAAGA AATTATTACT AAAAAATAAA ATAGTTGATT TTGTGAGAGT AATGTATGTT
TAAATTATTT AAATATGACC CGGAATATTT TATTTTTAAG
TACTTCTGGT TGATTATTTT TATTCCAGAG CAAAAGTATG TATTTTTATT AATTTTTATG AATTTAATTT
TATTTCATAT AAAATTTTTG AAAACTAAGC TAATATTAAA
AAATGAAATT TTATTGTTTT TATTATGGTC TATATTATGT TTTGTTTCAG TAGTCACAAG TATGTTTGTT
GAAATAAATT TTGAAAGATT ATTTGCAGAT TTTACTGCTC
CCATAATTTG GATTATTGCA ATAATGTATT ATAATTTGTA TTCATTTATA AATATTGATT ATAAAAAATT
AAAAAATAGT ATCTTTTTA GTTTTTTAGT TTTATTAGGT
ATATCTGCAT TGTATATTAT TCAAAATGGG AAAGATATTG TATTTTTAGA CAGACACCTT ATAGGACTAG
ACTATCTTAT AACAGGCGTC AAAACAAGGT TGGTTGGCTT
TATGAACTAT CCTACGTTAA ATACCACTAC AATTATAGTT TCAATTCCGT TAATCTTTGC ACTTATAAAA
AATAAAATGC AACAATTTTT TTTCTTGTGT CTTGCTTTTA
```

Fig. 4

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TACCGATCTA TTTAAGTGGA TCGAGAATTG GTAGTTTATC GCTAGCAATA TTAATTATAT GCTTGTTATG
GAGATATATA GGTGGAAAAT TTGCTTGGAT AAAAAAGCTA
ATAGTAATAT TTGTAATACT ACTTATTATT TTAAATACTG AATTGCTTTA CCATGAAATT TTGGCTGTTT
ATAATTCTAG AGAATCAAGT AACGAAGCTA GATTTATTAT
TTATCAAGGA AGTATTGATA AAGTATTAGA AAACAATATT TTATTTGGAT ATGGAATATC CGAATATTCA
GTTACGGGAA CTTGGCTCGG AAGTCATTCA GGCTATATAT
CATTTTTTTA TAAATCAGGA ATAGTTGGGT TGATTTACT GATGTTTTCT TTTTTTTATG TTATAAAAAA
AAGTTATGGA GTTAATGGGG AAACAGCACT ATTTTATTTT
ACATCATTAG CCATATTTTT CATATATGAA ACAATAGATC CGATTATTAT TATATTAGTA CTATTCTTTT
CTTCAATAGG TATTTGGAAT AATATAAATT TTAAAAGGA
TATGGAGACA AAAAATGAAT GATTTAATTT CAGTTATTGT ACCAATTTAT AATGTCCAAG ATTATCTTGA
TAAATGTATT AACAGTATTA TTAACCAAAC ATATACTAAT
TTAGAGGTTA TTCTCGTAAA TGATGGAAGT ACTGATGATT CTGAGAAAAT TTGCTTAAAC TATATGAAGA
ACGATGGAAG AATTAAATAT TACAAGAAAA TTAATGGCGG
TCTAGCAGAT GCTCGAAATT TCGGACTAGA ACATGCAACA GGTAAATATA TTGCTTTTGT CGATTCTGAT
GACTATATAG AAGTTGCAAT GTTCGAGAGA ATGCATGATA
ATATAACTGA GTATAATGCC GATATAGCAG AGATAGATTT TTGTTTAGTA GACGAAAACG GGTATACAAA
GAAAAAAAGA AATAGTAATT TTCATGTCTT AACGAGAGAA
GAGACTGTAA AAGAATTTTT GTCAGGATCT AATATAGAAA ATAATGTTTG GTGCAAGCTT TATTCACGAG
ATATTATAAA AGATATAAAA TTCCAAATTA ATAATAGAAG
TATTGGTGAG GATTTGCTTT TTAATTTGGA GGTCTTGAAC AATGTAACAC GTGTAGTAGT TGATACTAGA
GAATATTATT ATAATTATGT CATTCGTAAC AGTTCGCTTA
TTAATCAGAA ATTCTCTATA AATAATATTG ATTTAGTCAC AAGATTGGAG AATTACCCCT TTAAGTTAAA
AAGAGAGTTT AGTCATTATT TTGATGCAAA AGTTATTAAA
GAGAAGGTTA AATGTTTAAA CAAAATGTAT TCAACAGATT GTTTGGATAA TGAGTTCTTG CCAATATTAG
AGTCTTATCG AAAAGAAATA CGTAGATATC CATTTATTAA
AGCGAAAAGA TATTTATCAA GAAAGCATTT AGTTACGTTG TATTTGATGA AATTTTCGCC TAAACTATAT
GTAATGTTAT ATAAGAAATT TCAAAAGCAG TAGAGGTAAA
AATGGATAAA ATTAGTGTTA TTGTTCCAGT TTATAATGTA GATAAATATT TAAGTAGTTG TATAGAAAGC
ATTATTAATC AAAATTATAA AAATATAGAA ATATTATTGA
TAGATGATGG CTCTGTAGAT GATTCTGCTA AAATATGCAA GGAATATGCA GAAAAAGATA AAAGAGTAAA
AATTTTTTTC ACTAATCATA GTGGAGTATC AAATGCTAGA
AATCATGGAA TAAAGCGGAG TACAGCTGAA TATATTATGT TTGTTGACTC TGATGATGTT GTTGATAGTA
GATTAGTAGA AAAATTATAT TTTAATATTA TAAAAAGTAG
AAGTGATTTA TCTGGTTGTT TGTACGCTAC TTTTTCAGAA AATATAAATA ATTTTGAAGT GAATAATCCA
AATATTGATT TTGAAGCAAT TAATACCGTG CAGGACATGG
GAGAAAAAAA TTTTATGAAT TTGTATATAA ATAATATTTT TTCTACTCCT GTTTGTAAAC TATATAAGAA
AAGATACATA ACAGATCTTT TTCAAGAGAA TCAATGGTTA
GGAGAAGATT TACTTTTTAA TCTGCATTAT TTAAAGAATA TAGATAGAGT TAGTTATTTG ACTGAACATC
TTTATTTTTA TAGGAGAGGT ATACTAAGTA CAGTAAATTC
TTTTAAAGAA GGTGTGTTTT TGCAATTGGA AAATTTGCAA AAACAAGTGA TAGTATTGTT TAAGCAAATA
TATGGTGAGG ATTTTGACGT ATCAATTGTT AAAGATACTA
TACGTTGGCA AGTATTTTAT TATAGCTTAC TAATGTTTAA ATACGGAAAA CAGTCTATTT TTGACAAATT
TTTAATTTTT AGAAATCTTT ATAAAAAATA TTATTTTAAC
TTGTTAAAAG TATCTAACAA AAATTCTTTG TCTAAAAATT TTTGTATAAG AATTGTTTCG AACAAAGTTT
TTAAAAAAAT ATTATGGTTA TAATAGGAAG ATATCATGGA
TACTATTAGT AAAATTTCTA TAATTGTACC TATATATAAT GTAGAAAAAT ATTTATCTAA ATGTATAGAT
AGCATTGTAA ATCAGACCTA CAAACATATA GAGATTCTTC
TGGTGAATGA CGGTAGTACG GATAATTCGG AAGAAATTTG TTTAGCATAT GCGAAGAAAG ATAGTCGCAT
TCGTTATTTT AAAAAAGAGA ACGGCGGGCT ATCAGATGCC
CGTAATTATG GCATAAGTCG CGCCAAGGGT GACTACTTAG CTTTTATAGA CTCAGATGAT TTTATTCATT
CGGAGTTCAT CCAACGTTTA CACGAAGCAA TTGAGAGAGA
GAATGCCCTT GTGGCAGTTG CTGGTTATGA TAGGGTAGAT GCTTCGGGGC ATTTCTTAAC AGCAGAGCCG
CTTCCTACAA ATCAGGCTGT TCTGAGCGGC AGGAATGTTT
GTAAAAGCT GCTAGAGGCG GATGGTCATC GCTTTGTGGT GGCCTGTAAT AAACTCTATA AAAAAGAACT
ATTTGAAGAT TTTCGATTTG AAAAGGGTAA GATTCATGAA
GATGAATACT TCACTTATCG CTTGCTCTAT GAGTTAGAAA AAGTTGCAAT AGTTAAGGAG TGCTTGTACT
ATTATGTTGA CCGAGAAAAT AGTATCACAA CTTCTAGCAT
GACTGACCAT CGCTTCCATT GCCTACTGGA ATTTCAAAAT GAACGAATGG ACTTCTATGA AAGTAGAGGA
GATAAAGAGC TCTTACTAGA GTGTTATCGT TCATTTTTAG
CCTTTGCTGT TTTGTTTTTA GGCAAATATA ATCATTGGTT GAGCAAACAG CAAAAGAAGC TT
```

Fig. 4 cont.

```
RQTKLALFDM IAVAISAILT SHIPNADLNR SGIFIIMMVH YFAFFISRMP VEFEYRGNLI
EFEKTFNYSI IFAIFLTAVS FLLENNFALS RRGAVYFTLI NFVLVYLFNV
IIKQFKDSFL FSTIYQKKTI LITTAERWEN MQVLFESHKQ IQKNLVALVV LGTEIDKINL
SLPLYYSVEE AIEFSTREVV DHVFINLPSE FLDVKQFVSD FELLGIDVSV
DINSFGFTAL KNKKIQLLGD HSIVTFSTNF YKPSHIMMKR LLDILGAVVG LIICGIVSIL
LVPIIRRDGG PAIFAQKRVG QNGRIFTFYK FRSMYVDAEE RKKDLLSQNQ
MQGWVCFKMG KTILELLQLD ISYAKTSLDE LPQFYNVLIG DMSLVGTRPP TVDEFEKYTP
GQKRRLSFKP GITGLWQVSG RSNITDFDDV VRLDLAYIDN WTIWSDIKIL
LKTVKVVLLR EGSK
```

Fig. 4 cont.

CPS1E

MKVCLVGSSG GHLTHLYLLK PFWKEEERFW VTFDKEDARS LLKNEKMYPC YFPTNRNLIN
LVKNTFLAFK ILRDEKPDVI ISSGAAVAVP FFYIGKLFGA KTIYIEVFDR
VNKSTLTGKL VYPVTDIFIV QWEEMKKVYP KSINLGSIF

Fig. 4 cont.   CPS1F

MIFVTVGTHE QQFNRLIKEI DLLKKNGSIT DEIFIQTGYS DYIPEYCKYK KFLSYKEMEQ
YINKSEVVIC HGGPATFMNS LSKGKKQLLF PRQKKYGEHV NDHQVEFVRR
ILQDNNILFI ENIDDLFEKI IEVSKQTNFT SNNNFFCERL KQIVEKFNED QENE

Fig. 4 cont.   CPS1G

```
MFKLFKYDPE YFIFKYFWLI IFIPEQKYVF LLIFMNLILF HIKFLKTRLI LKNEILLFLL
WSILCFVSVV TSMFVEINFE RLFADFTAPI IWIIAIMYYN LYSFINIDYK
KLKNSIFFSF LVLLGISALY IIQNGKDIVF LDRHLIGLDY LITGVKTRLV GFMNYPTLNT
TTIIVSIPLI FALIKNKMQQ FFFLCLAFIP IYLSGSRIGS LSPLAILIIC
LLWRYIGGKF AWIKKLIVIF VILLIILNTE LLYHEILAVY NSRESSNEAR FIIYQGSIDK
VLENNILFGY GISEYSVTGT WLGSHSGYIS FFYKSGIVGL ILLMFSFFYV
IKKSYGVNGE TALFYFTSLA IFFIYETIDP IIIILVLFFS SIGIWNNINF KKDMETKNE
```

Fig. 4 cont.   **CPS1H**

```
MNDLISVIVP IYNVQDYLDK CINSIINQTY TNLEVILVND GSTDDSEKIC LNYMKNDGRI
KYYKKINGGL ADARNFGLEH ATGKYIAFVD SDDYIEVAMF ERMHDNITEY
NADIAEIDFC LVDENGYTKK KRNSNFHVLT REETVKEFLS GSNIENNVWC KLYSRDIIKD
IKFQINNRSI GEDLLFNLEV LNNVTRVVVD TREYYYNYVI RNSSLINQKF
SINNIDLVTR LENYPFKLKR EFSHYFDAKV IKEKVKCLNK MYSTDCLDNE FLPILESYRK
EIRRYPFIKA KRYLSRKHLV TLYLMKFSPK LYVMLYKKFQ KQ
```

Fig. 4 cont.   CPS1I

```
MDKISVIVPV YNVDKYLSSC IESIINQNYK NIEILLIDDG SVDDSAKICK EYEKDKRVKI
FFTNHSGVSN ARNHGIKRST AEYIMFVDSD DVVDSRLVEK LYFNIIKSRS
DLSGCLYATF SENINNFEVN NPNIDFEAIN TVQDMGEKNF MNLXXNNIFS TPVCXLYQKR
YITDLFQENQ WLGEDLLFNL HYLKNIDRVS YLTEHLYFYR RGILSTVNSF
KEGVFLQLEN LQKQVIVLFK QIYGEDFDVS IVKDTIRWQV FYYSLLMFKY GKQSIFDKFL
IFRNLYKKYY FNLLKVSNKN SLSKNFCIRI VSNKVFKKIL WL
```

Fig. 4 cont.   CPS1J

```
MDTISKISII VPIYNVEKYL SKCIDSIVNQ TYKHIEILLV NDGSTDNSEE ICLAYAKKDS
RIRYFKKENG GLSDARNYGI SRAKGDYLAF IDSDDFIHSE FIQRLHEAIE
RENALVAVAG YDRVDASGHF LTAEPLPTNQ AVLSGRNVCK KLLEADGHRF VVACNKLYKK
ELFEDFRFEK GKIHEDEYFT YRLLYELEKV AIVKECLYYY VDRENSITTS
SMTDHRFHCL LEFQNERMDF YESRGDKELL LECYRSFLAF AVLFLGKYNH WLSKQQKK
```

Fig. 4 cont.   **CPS1K**

```
AAGCTTATCG TCAAGGTGTT CGCTATATCG TGGCGACATC TCATAGACGA AAAGGGATGT
TTGAAACACC AGAAAAAGTT ATCATGACTA ACTTTCTTCA ATTTAAAGAC
GCAGTAGCAG AAGTTTATCC TGAAATACGA TTGTGCTATG GTGCTGAATT GTATTATAGT
AAAGATATAT TAAGCAAACT TGAAAAAAAG AAAGTACCCA CACTTAATGG
CTCGCGCTAT ATTCTTTTGG AGTTCAGTAG TGATACTCCT TGGAAAGAGA TTCAAGAAGC
AGTGAACGAA GTGACGCTAC TTGGGCTAAC TCCCGTACTT GCCCATATAG
AACGATATGA CGCCCTAGCG TTTCATGCAG AGAGAGTAGA AGAGTTAATT GACAAGGGAT
GCTATACTCA GGTAAATAGT AATCATGTGC TGAAGCCCAC TTTAATTGGT
GATCGAGCAA AAGAATTTAA AAAACGTACT CGGTATTTTT TAGAGCAGGA TTTAGTACAT
TGTGTTGCTA GCGATATGCA TAATTTATCT AGTAGACCTC CGTTTATGAG
GGAGGCTTAT AAGTTGCTAA CAGAGGAATT TGGCAAAGAT AAAGCGAAAG CGTTGCTAAA
AAAGAATCCT CTTATGCTAT TAAAAAACCA GGCGATTTAA ACTGGTTACT
CTAGATTGTG GAGAGAAAAA TGGATTTAGG AACTGTTACT GATAAACTGT TAGAACGCAA
CAGTAAACGA TTGATACTCG TGTGCATGGA TACGTGTCTT CTTATAGTTT
CCATGATTTT GAGCAGACTG TTTTTGGATG TTATTATTGA CATACCAGAT GAACGCTTCA
TTCTTGCAGT TTTATTCGTA TCAATTTTAT ATTTGATTCT ATCGTTTAGA
TTAAAAGTCT TTTCATTAAT TACGCGTTAC ACAGGGTATC AGAGTTATGT AAAAATAGGA
CTTAGTTTAA TATCTGCGCA TTCATTGTTT TTAATTATCT CAATGGTGTT
GTGGCAGGCT TTTAGTTATC GTTTCATCTT AGTATCCTTA TTTTTGTCGT ATGTAATGCT
CATTACTCCG AGGATTGTTT GGAAAGTCTT ACATGAGACG AGAAAAAATG
CTATCCGTAA GAAGGATAGC CCACTAAGAA TCTTAGTAGT AGGTGCTGGA GATGGTGGTA
ATATTTTTAT CAATACTGTC AAAGATCGAA AATTGAATTT TGAAATTGTC
GGTATCGTTG ATCGTGATCC AAATAAACTT GGAACATTTA TCCGTACGGC TAAAGTTTTA
GGAAACCGTA ATGATATTCC ACGACTGGTA GAGGAATTAG CTGTTGACCA
AGTGACGATT GCCATCCCTT CTTTAAATGG TAAGGAGCGA GAGAAGATTG TTGAAATCTG
TAACACTACA GGAGTGACCG TCAATAATAT GCCGAGTATT GAAGACATTA
TGGCGGGGAA CATGTCTGTC AGTGCCTTTC AGGAAATTGA CGTAGCAGAC CTTCTTGGTC
GACCAGAGGT TGTTTTGGAT CAGGATGAAT TGAATCAGTT TTTCCAAGGG
AAAACAATCC TTGTCACAGG AGCAGGTGGC TCTATCGGTT CAGAGCTATG TCGTCAAATT
GCTAAGTTTA CGCCTAAACG CTTGTTGTTG CTTGGACATG GAGAAAATTC
AATCTATCTC ATTCATCGAG AGTTACTGGA AAAGTACCAA GGTAAGATTG AGTTGGTCCC
TCTCATTGCA GATATTCAAG ATAGAGAATT GATTTTTAGC ATAATGGCTG
AATATCAACC CGATGTTGTT TATCATGCTG CAGCACATAA GCATGTTCCT TTGATGGAAT
ATAATCCACA TGAAGCAGTG AAGAATAATA TTTTTGGAAC GAAGAATGTG
GCTGAGGCGG CTAAAACTGC AAAGGTTGCC AAATTTGTTA TGGTTTCAAC AGATAAAGCT
GTTAATCCAC CAAATGTCAT GGGAGCGACT AAACGTGTTG CAGAAATGAT
TGTTACAGGT TTAAACGAGC CAGGTCAGAC TCAATTTGCG GCAGTCCGGT TTGGGAATGT
TCTAGGTAGT CGTGGAAGTG TTGTTCCGCT ATTCAAAGAG CAAATTAGAA
AAGGTGGACC TGTTACGGTT ACCGACTTTA GGATGACTCG TTATTTCATG ACGATTCCTG
AGGCAAGTCG TTTGGTTATC CAAGCTGGAC ATTTGGCAAA AGGTGGAGAA
ATATTTGTCT TGGATATGGG CGAGCCAGTA CAAATCCTGG AATTGGCAAG AAAAGTTATC
TTGTTAAGTG GACACACAGA GGAAGAAATC GGGATTGTAG AATCTGGAAT
CAGACCAGGC GAGAAACTCT ACGAGGAATT ATTATCAACA GAAGAACGTG TCAGCGAACA
GATTCATGAA AAAATATTTG TGGGTCGCGT TACAAATAAG CAGTCGGACA
TTGTCAATTC ATTTATCAAT GGATTACTCC AAAAAGATAG AAATGAATTA AAAAATATGT
TGATTGAATT TGCAAAACAA GAATAAGAAA GTAAAAAATA TTTTTACTTT
CCTAGAGTTT AAACGATGTT TAAGTTCTAG GAAGGTTAGA ATACCTAATT AACAACAATA
TTACTATTTA TTAAGAGTCA GATAATAGCA ACTAAGTGCT ACAAACTATC
TTTATAATAA GTATATTTGG TCAAAGGGA GATGTGAAAT GTATCCAATT TGTAAACGTA
TTTTAGCAAT TATTATCTCA GGGATTGCTA TTGTTGTTCT GAGTCCAATT
TTATTATTGA TTGCATTGGC AATTAAATTA GATTCTAAAG GTCCGGTATT ATTTAAACAA
AAGCGGGTTG GTAAAAACAA GTCATACTTT ATGATTTATA AATTCCGTTC
TATGTACGTT GACGCACCAA GTGATATGCC GACTCATCTA TTAAAGGATC CTAAGGCGAT
GATTACCAAG GTGGGCGCGT TTCTCAGAAA AACAAGTTTA GATGAACTGC
CACAGCTTTT TAATATTTTT AAAGGTGAAA TGGCGATTGT TGGTCCACGC CCAGCCTTAT
GGAATCAATA TGACTTAATT GAAGAGCGAG ATAAATATGG TGCAAATGAT
ATTCGTCCTG GACTAACCGG TTGGGCTCAA ATTAATGGTC GTGATGAATT GGAAATTGAT
GAAAAGTCAA AATTAGATGG ATATTATGTT CAAAATATGA GTCTAGGTTT
GGATATTAAA TGTTTCTTAG GTACATTCCT CAGTGTAGCC AGAAGCGAAG GTGTTGTTGA
AGGTGGAACA GGGCAGAAAG GAAAAGGATG AAATTTTCAG TATTAATGTC
GGTCTATGAG AAAGAAAAAC CAGAGTTTCT TAGGGAATCT TTGGAAAGCA TCCTTGTCAA
TCAAACAATG ATTCCAACGG AGGTTGTCTT GGTAGAGGAT GGGCCACTCA
ATCAGAGCTT ATATAGTATT TTAGAAGAAT TTAAAAGTCG ATTTTCATTT TTTAAAACGA
TAGCCTTGGA AAAGAATTCG GGTTTAGGAA TTGCACTGAA TGAAGGTTTG
AAACATTGTA ATTATGAGTG GGTTTGCACG AAATGGATTC TGATGATGTT GCATATACAT
ACACGTTTTG AAAAGCAAGT TAACTTTATA AAACAAAACC CGACTATAGA
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DNA Serotype 9

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TATTGAGATA GATGAGTTCT TAAATTCTAC TAGTGAAATA GTTTCTCATA AAAATGTTCC
AACCCAGCAC GATGAAATAT TAAAGATGGC AAGGCGGGAG AAATCCATGT
GCCACATGAC TGTAATGTTT AAAAAGAAAA GTGTCGAGAG AGCAGGGGGG TATCAAACAC
TTCCGTACGT AGAAGATTÀT TTCCTTTGGG TGCGCATGAT TGCTTCAGGA
TCGAAATTTG CAAACATTGA TGAAACACTA GTTCTTGCAC GTGTTGGAAA TGGGATGTTC
AATAGGAGGG GGAACAGAGA ACAAATTAAC AGTTGGACAT TACTAATTGA
ATTTATGTTA GCTCAAGGAA TTGTTACACC ACTAGATGTA TTTATTAATC AAATTTACAT
TAGGGTCTTT GTTTATATGC CAACTTGGAT AAAGAAACTC ATTTATGGAA
AAATCTTAAG GAAATAGTAT GATTACAGTA TTGATGGCTA CATATAATGG AAGCCCATTT
ATAATAAAAC AGTTAGATTC AATTCGAAAT CAAAGTGTAT CAGCAGACAA
AGTTATTATT TGGGATGATT GCTCGACAGA TGATACAATA AAAATAATAA AAGATTATAT
AAAAAAATAT TCTTTGGATT CATGGGTTGT CTCTCAAAAT AAATCTAATC
AGGGGCATTA TCAAACATTT ATAAATTTGA CAAAGTTAGT TCAGGAAGGA ATAGTCTTTT
TTTCAGATCA AGATGATATT TGGGACTGTC ATAAAATTGA GACAATGCTT
CCAATCTTTG ACAGAGAAAA TGTATCAATG GTGTTTTGCA AATCCAGATT GATTGATGAA
AACGGAAATA TTATCAGTAG CCCAGATACT TCGGATAGAA TCAATACGTA
CTCTCTAGA
```

Fig. 5 cont.

```
AYRQGVRYIV ATSHRRKGMF ETPEKVIMTN FLQFKDAVAE VYPEIRLCYG AELYYSKDIL
SKLEKKKVPT LNGSRYILLE FSSDTPWKEI QEAVNEVTLL GLTPVLAHIE
RYDALAFHAE RVEELIDKGC YTQVNSNHVL KPTLIGDRAK EFKKRTRYFL EQDLVHCVAS
DMHNLSSRPP FMREAYKLLT EEFGKDKAKA LLKKNPLMLL KNQAI
```

Fig. 5 cont.   **CPS9D**

```
MDLGTVTDKL LERNSKRLIL VCMDTCLLIV SMILSRLFLD VIIDIPDERF ILAVLFVSIL
YLILSFRLKV FSLITRYTGY QSYVKIGLSL ISAHSLFLII SMVLWQAFSY
RFILVSLFLS YVMLITPRIV WKVLHETRKN AIRKKDSPLR ILVVGAGDGG NIFINTVKDR
KLNFEIVGIV DRDPNKLGTF IRTAKVLGNR NDIPRLVEEL AVDQVTIAIP
SLNGKEREKI VEICNTTGVT VNNMPSIEDI MAGNMSVSAF QEIDVADLLG RPEVVLDQDE
LNQFFQGKTI LVTGAGGSIG SELCRQIAKF TPKRLLLLGH GENSIYLIHR
ELLEKYQGKI ELVPLIADIQ DRELIFSIMA EYQPDVVYHA AAHKHVPLME YNPHEAVKNN
IFGTKNVAEA AKTAKVAKFV MVSTDKAVNP PNVMGATKRV AEMIVTGLNE
PGQTQFAAVR FGNVLGSRGS VVPLFKEQIR KGGPVTVTDF RMTRYFMTIP EASRLVIQAG
HLAKGGEIFV LDMGEPVQIL ELARKVILLS GHTEEEIGIV ESGIRPGEKL
YEELLSTEER VSEQIHEKIF VGRVTNKQSD IVNSFINGLL QKDRNELKNM LIEFAKQE
```

Fig. 5 cont.   **CPS9E**

```
MYPICKRILA IIISGIAIVV LSPILLLIAL AIKLDSKGPV LFKQKRVGKN KSYFMIYKFR
SMYVDAPSDM PTHLLKDPKA MITKVGAFLR KTSLDELPQL FNIFKGEMAI
VGPRPALWNQ YDLIEERDKY GANDIRPGLT GWAQINGRDE LEIDEKSKLD GYYVQNMSLG
LDIKCFLGTF LSVARSEGVV EGGTGQKGKG
```

Fig. 5 cont.   CPS9F

```
MKFSVLMSVY EKEKPEFLRE SLESILVNQT MIPTEVVLVE DGPLNQSLYS ILEEFKSRFS
FFKTIALEKN SGLGIALNEG LKHCNYEWVC TKWILMMLHI HTRFEKQVNF
IKQNPTIDIE IDEFLNSTSE IVSHKNVPTQ HDEILKMARR EKSMCHMTVM FKKKSVERAG
GYQTLPYVED YFLWVRMIAS GSKFANIDET LVLARVGNGM FNRRGNREQI
NSWTLLIEFM LAQGIVTPLD VFINQIYIRV FVYMPTWIKK LIYGKILRK
```

Fig. 5 cont.   CPS9G

MITVLMATYN GSPFIIKQLD SIRNQSVSAD KVIIWDDCST DDTIKIIKDY IKKYSLDSWV
VSQNKSNQGH YQTFINLTKL VQEGIVFFSD QDDIWDCHKI ETMLPIFDRE
NVSMVFCKSR LIDENGNIIS SPDTSDRINT YSL

Fig. 5 cont. CPS9B

CTGCAGCACA TAAGCATGTT CCATTGATGG AATATAATCC ACATGAAGCA GTGAAGAATA
ATATTTTTGG AACGAAGAAT GTGGCTGAGG CGGCTAAAAC TGCAAAGGTT
GCCAAATTTG TTATGGTTTC AACAGATAAA GCTGTTAATC CGCCAAATGT CATGGGAGCG
ACTAAACGTG TTGCAGAAAT GATTGTAACA GGTTAAACG AGCCAGGTCA
GACTCAATTT GCGGCAGTCC GTTTTGGGAA TGTTCTAGGT AGTCGTGGAA GTGTTGTTCC
GCTATTCAAA GAGCAAATTA GAAAAGGTGG ACCTGTTACG GTTACCGACT
TTAGGATGAC TCGTTATTTC ATGACGATTC CTGAGGCAAG TCGTTTGGTT ATCCAAGCTG
GACATTTGGC AAAAGGTGGA GAAATCTTTG TCTTGGATAT GGGTGAGCCA
GTACAAATCC TGGAATTGGC AAGAAAAGTT ATCTTGTTAA GCGGACATAC AGAGGAAGAA
ATCGGGATTG TAGAATCTGG AATCAGACCA GGCGAGAAAC TCTACGAGGA
ATTGTTATCA ACAGAAGAAC GTGTCAGCGA ACAGATTCAT GAAAAAATAT TTGTGGGTCG
CGTTACAAAT AAGCAGTCGG ACATTGTCAA TTCATTTATC AATGGATTAC
TCCAAAAAGA TAGAAATGAA TTAAAAGATA TGTTGATTGA ATTTGCAAAA CAAGAATAAG
AAAGTAAAAA ATATTTTTAC TTTCCTAGAG TTTAAACGAT GTTTAAGTTC
TAGGAAGGTT GGAATTGCTT TCGTGGAGGT GATAGATAGA AACCTATATA TTTGTAGAAG
AAAGGATATT AAACTAAAGG TGAATCGGAA CATAAAGTTT AGATAGAGTT
GGTATTTAAT GCCAAACAGG TGAATGCAAC CTCTCGCTCG TTACTAAGCA GGAGATAGTA
AAGTTGCTTG AAAGAGAGTT TGTTAATCAG TATAAGTAGG CTAAAGTGAG
AATATATATC TATTATTATC GGTAATGATA CTATTATTGA GAATTATTGT AGTGGGGATA
AAAATAATTT TTGGTGATTT TATCGTCCGA CTTAAAGGTG GGTTAAAAAA
GTACTTATAT TCTTTTAGAA TTGATGAAAA ATATGGGGGA ATATAATATT TATAGGAGAT
ACGATGACTA GAGTAGAGTT GATTACTAGA GAATTTTTTA AGAAGAATGA
AGCAACCAGT AAATATTTTC AGAAGATAGA ATCAAGAAGA GGTGAATTAT TTATTAAATT
CTTTATGGAT AAGTTACTTG CGCTTATCCT ATTATTGCTA TTATCCCCAG
TAATCATTAT ATTAGCTATT TGGATAAAAT TAGATAGTAA GGGGCCAATT TTTTATCGCC
AAGAACGTGT TACGAGATAT GGTCGAATTT TTAGAATATT TAAGTTTAGA
ACAATGATTT CTGATGCGGA TAAAGTCGGA AGTCTTGTCA CAGTCGGTCA AGATAATCGT
ATTACGAAAG TCGGTCACAT TATCAGAAAA TATCGGCTGG ACGAAGTGCC
CCAACTTTTT AATGTTTTAA TGGGGGATAT GAGCTTTGTA GGTGTAAGAC CAGAAGTACA
AAAATATGTA AATCAGTATA CTGATGAAAT GTTTGCGACG TTACTTTTAC
CTGCAGGAAT TACTTCACCA GCGAGTATTG CATATAAGGA TGAAGATATT GTTTTAGAAG
AATATTGTTC TCAAGGCTAT AGTCCTGATG AAGCATATGT TCAAAAAGTA
TTACCAGAAA AAATGAAGTA CAATTTGGAA TATATCAGAA ACTTTGGAAT TATTTCTGAT
TTTAAAGTAA TGATTGATAC AGTAATTAAA GTAATAAAAT AGGAGATTAA
AATGACAAAA AGACAAAATA TTCCATTTTC ACCACCAGAT ATTACCCAAG CTGAAATTGA
TGAAGTTATT GACACACTAA AATCTGGTTG GATTACAACA GGACCAAAGA
CAAAAGAGCT AGAACGTCGG CTATCAGTAT TTACAGGAAC CAATAAAACT GTGTGTTTAA
ATTCTGCTAC TGCAGGATTG GAACTAGTCT TACGAATTCT TGGTGTTGGA
CCCGGGAGATG AAGTTATTGT TCCTGCTATG ACCTATACTG CCTCATGTAG TGTCATTACT
CATGTAGGAG CAACTCCTGT GATGGTTGAT ATTCAAAAAA ACAGCTTTGA
GATGGAATAT GATGCTTTGG AAAAAGCGAT TACTCCGAAA ACAAAAGTTA TCATTCCTGT
TGATCTAGCT GGTATTCCTT GTGATTATGA TAAGATTTAT ACCATCGTAG
AAAACAAACG CTCTTTGTAT GTTGCTTCTG ATAATAAATG GCAGAAACTT TTTGGGCGAG
TTATTATCCT ATCTGATAGT GCACACTCAC TAGGTGCTAG TTATAAGGGA
AAACCAGCGG GTTCCCTAGC AGATTTTACC TCATTTTCTT TCCATGCAGT TAAGAATTTT
ACAACTGCTG AAGGAGGTAG TGTGACATGG AGATCACATC CTGATTTGGA
TGACGAAGAG ATGTATAAAG AGTTTCAGAT TTACTCTCTT CATGGTCAGA CAAAGGATGC
ATTAGCTAAG ACACAATTGA GGTCATGGGA ATATGACATT GTTATTCCTG
GTTACAAGTG TAATATGACA GATATTATGG CAGGTATCGG TCTTGTGCAA TTAGAACGTT
ACCCATCTTT GTTGAATCGT CGCAGAGAAA TCATTGAGAA ATACAATGCT
GGCTTTGAGG GGACTTCGAT TAAGCCGTTG GTACACCTGA CGGAAGATAA ACAATCGTCT
ATGCACTTGT ATATCACGCA TCTACAAGGC TATACTTTAG AACAACGAAA
TGAAGTCATT CAAAAAAATGG CTGAAGCAGG TATTGCGTGC AATGTTCACT ACAAACCATT
ACCTCTTCTC ACAGCCTACA AGAATCTTGG TTTTGAAATG AAAGATTTTC
CGAATGCCTA TCAGTATTTT GAAAATGAAG TTACACTGCC TCTTCATACC AACTTGAGTG
ATGAAGATGT GGAGTATGTG ATAGAAATGT TTTTAAAAAT TGTTAGTAGA
GATTAGTTAT TTTGGAAGGA GATATGGTGG AAAGAGATAT GGTGGAAAGA GACACGTTGG
TATCTATAAT AATGCCCTCG TGGAATACAG CTAAGTATAT ATCTGAATCA .
ATCCAGTCAG TGTTGGACCA AACACACCAA AATTGGGAAC TTATAATCGT TGATGATTGT
TCTAATGACG AAACTGAAAA AGTTGTTTCG CATTTCAAAG ATTCAAGAAT

                                                    DNA Serotype 7

Fig. 6

AAAGTTTTTT AAAAATTCGA ATAATTTAGG GGCAGCTCTA ACACGAAATA AGGCACTAAG
AAAAGCTAGA GGTAGGTGGA TTGCGTTCTT GGATTCAGAT GATTTATGGC
ACCCGAGTAA GCTAGAAAAA CAGCTTGAAT TTATGAAAAA TAATGGATAT TCATTTACTT
ATCACAATTT TGAAAAGATT GATGAATCTA GTCAGTCTTT ACGTGTCCTG
GTGTCAGGAC CAGCAATTGT GACTAGAAAA ATGATGTACA ATTACGGCTA TCCAGGGTGT
TTGACTTTCA TGTATGATGC AGACAAAATG GGTTTAATTC AGATAAAAGA
TATAAAGAAA AATAACGATT ATGCGATATT ACTTCAATTG TGTAAGAAGT ATGACTGTTA
TCTTTTAAAT GAAAGTTTAG CTTCGTATCG AATTAGAAAA AA

Fig. 6 cont.

AAHKHVPLME YNPHEAVKNN IFGTKNVAEA AKTAKVAKFV MVSTDKAVNP PNVMGATKRV
AEMIVTGLNE PGQTQFAAVR FGNVLGSRGS VVPLFKEQIR KGGPVTVTDF
RMTRYFMTIP EASRLVIQAG HLAKGGEIFV LDMGEPVQIL ELARKVILLS GHTEEEIGIV
ESGIRPGEKL YEELLSTEER VSEQIHEKIF VGRVTNKQSD IVNSFINGLL
QKDRNELKDM LIEFAKQE

Fig. 6 cont.   CPS7E

```
MTRVELITRE FFKKNEATSK YFQKIESRRG ELFIKFFMDK LLALILLLLL SPVIIILAIW
IKLDSKGPIF YRQERVTRYG RIFRIFKFRT MISDADKVGS LVTVGQDNRI
TKVGHIIRKY RLDEVPQLFN VLMGDMSFVG VRPEVQKYVN QYTDEMFATL LLPAGITSPA
SIAYKDEDIV LEEYCSQGYS PDEAYVQKVL PEKMKYNLEY IRNFGIISDF
KVMIDTVIKV IK
```

Fig. 6 cont.   **CPS7F**

```
MTKRQNIPFS PPDITQAEID EVIDTLKSGW ITTGPKTKEL ERRLSVFTGT NKTVCLNSAT
AGLELVLRIL GVGPGDEVIV PAMTYTASCS VITHVGATPV MVDIQKNSFE
MEYDALEKAI TPKTKVIIPV DLAGIPCDYD KIYTIVENKR SLYVASDNKW QKLFGRVIIL
SDSAHSLGAS YKGKPAGSLA DFTSFSFHAV KNFTTAEGGS VTWRSHPDLD
DEEMYKEFQI YSLHGQTKDA LAKTQLGSWE YDIVIPGYKC NMTDIMAGIG LVQLERYPSL
LNRRREIIEK YNAGFEGTSI KPLVHLTEDK QSSMHLYITH LQGYTLEQRN
EVIQKMAEAG IACNVHYKPL PLLTAYKNLG FEMKDFPNAY QYFENEVTLP LHTNLSDEDV
EYVIEMFLKI VSRD
```

Fig. 6 cont.   CPS7G

MVERDMVERD TLVSIIMPSW NTAKYISESI QSVLDQTHQN WELIIVDDCS NDETEKVVSH
FKDSRIKFFK NSNNLGAALT RNKALRKARG RWIAFLDSDD LWHPSKLEKQ
LEFMKNNGYS FTYHNFEKID ESSQSLRVLV SGPAIVTRKM MYNYGYPGCL TFMYDADKMG
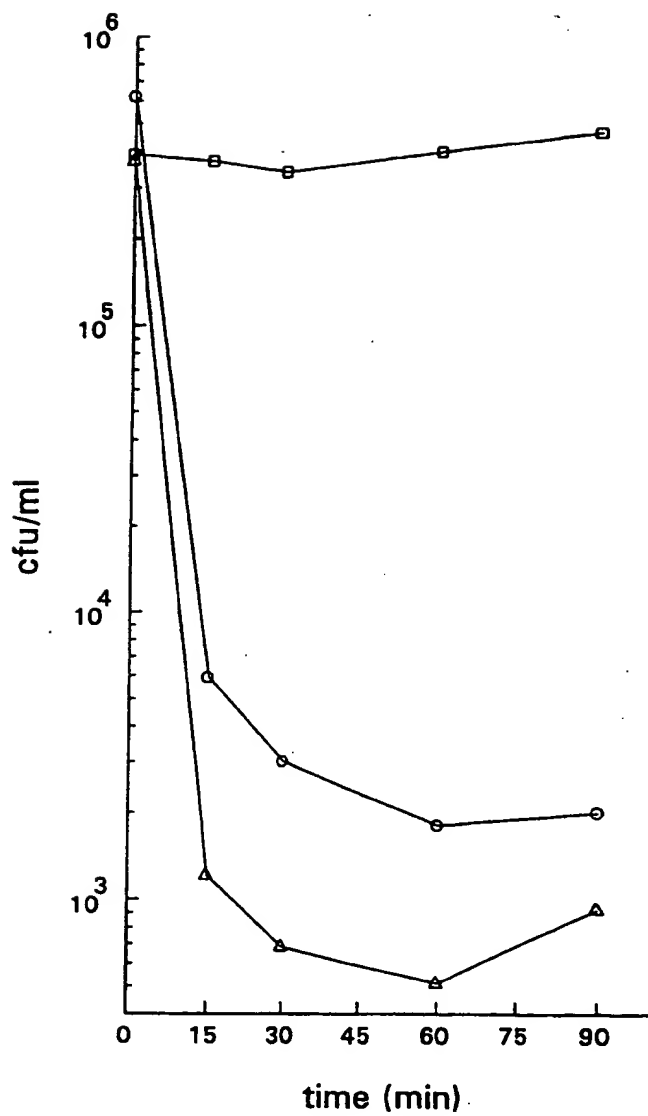LIQIKDIKKN NDYAILLQLC KKYDCYLLNE SLASYRIRK

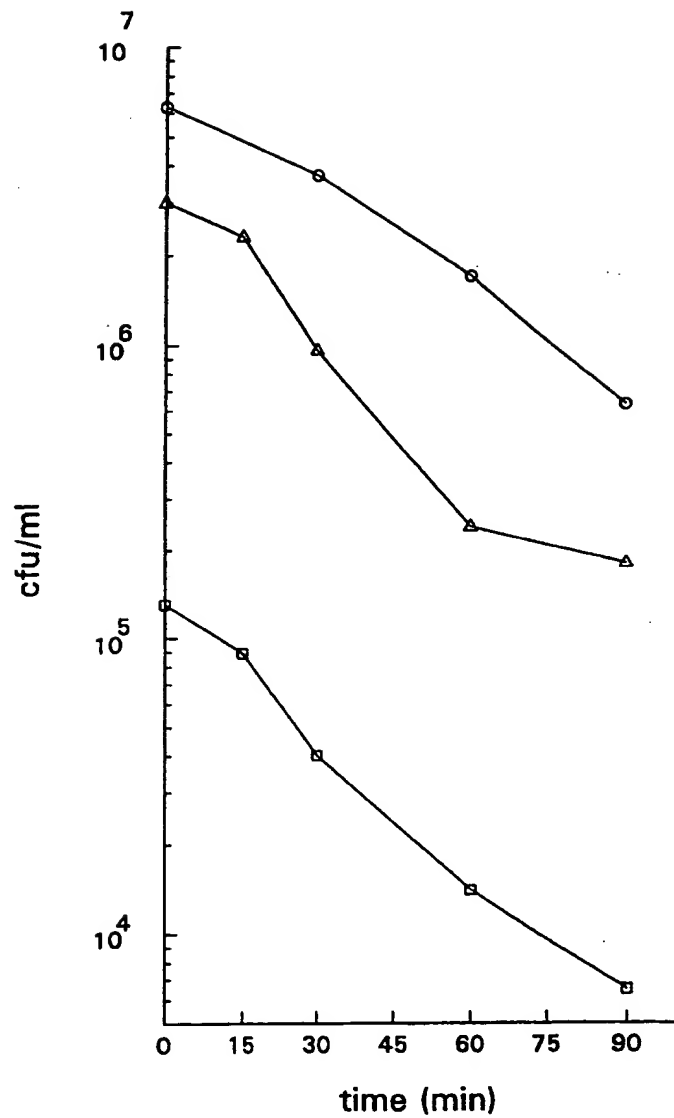**Fig. 6 cont.**   **CPS7H**

Fig. 9A

Fig. 9B

```
                                                    *
Cps2J   MEKVSIIVPI FNTEKYLREC LDSIISQSYT NLEILLIDDG SSDSSTDICL EYAEQDGRIK   60
        | |||||||  | | ||  |   ||  | |   |||| ||  | | |  |||  || | ||
Cps2K   MINISIIVPI YNVEQYLSKC INSIVNQTYK HIEILLVNDG STDNSEEICL AYAKKDSRIR   60


                                  *
Cps2J   LFRLPNGGVS NARNYGIKNS TANYIMFVDS DDIVDGNIVE SLYTCLKEND SDLSGGLLAT   120
        |  ||| |  ||||||     |  | ||   ||      |        |      | |
Cps2K   YFKKENGGLS DARNYGISRA KGDYLAFIDS DDFIHSEFIQ RL_HEAIERE NAL__VAVAG   117
```

Fig. 7

Fig. 8

```
(1) 10508 AAGGGCACCT CTATAAACTC CCAAAATTGC GAATTGGAG TTACGAAAGC CTTGTTAAAT CAA-CATTTTA AATTTTAGAA AATTAGTTTT TAGAGCTCCC   10607
             ||||||||  ||||||| |    ||||||||  |||||||||  |||||||||  ||||||||    |||  ||| |||  |||||||||| |||||||| |||| ||||
(2) 16985 GGGGGCACCT CTATAAATTC CCAAAATTGC GAATTGGAG TTACGAAAGC CTTGTTAAAT CAA-CATCTTA AATTTTAGAA AATTAGTTTT TAGAGGTCCC   17084
             |||||||  ||||| ||   ||||||||  |||||||||  |||||||||  |||||||||  |||  ||| ||  |||||||||| |||||||||| ||||||||||
(3) 19803 AAGGGCACCT CTATAAACTC CCAAAATTGC GAATTGGAG TTACGAAAGC CTTGTTAAAT CAAACATTTTA AATTTTAGAA AATTAGTTTT TAGAGGTCCC   19903
```

Fig. 10

Fig. 11

A

M type 1^R type 2^R type 9^R type 7^R C M

B
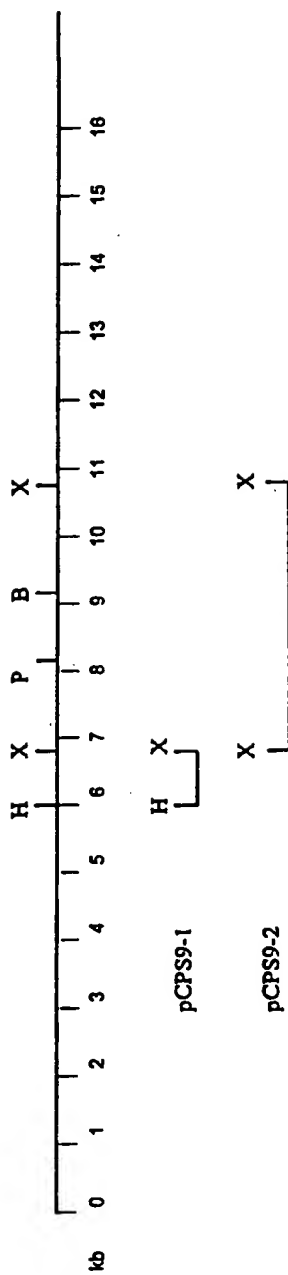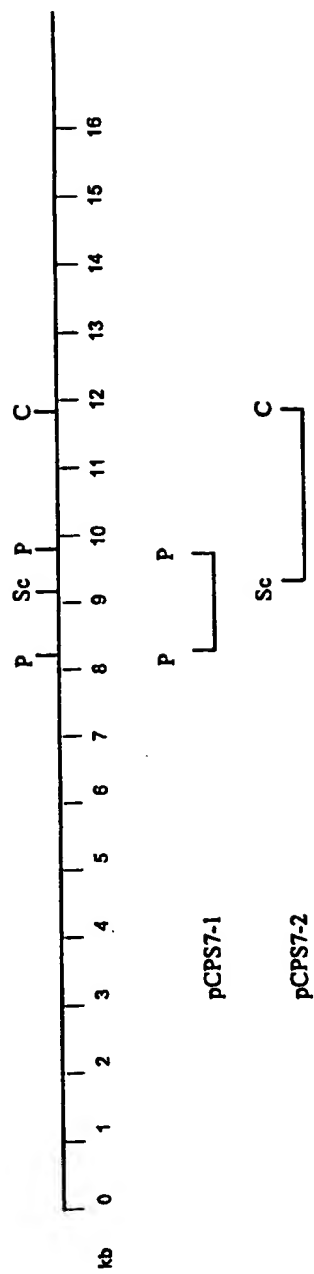
M 7711 7744 7917 15009 15011 8084 8140 8187 8198 C126 7759 15913 7044 7068 type 7^R C M

Fig. 12